Program Outcomes

Evaluating, Measuring, and Identifying
Patient Care Benefits and Cost Reduction

Kansas Medical Assistance Program
Retrospective Drug Utilization Review
Provider Education and Intervention Program

Adverse Cardiometabolic Effects of Antipsychotics
Mailed July 2011

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HEALTH INFORMATION DESIGNS
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Executive Summary

This *Outcomes Assessment* report prepared for the Kansas Medical Assistance Programs shows the expected improvements in beneficiary health and cost savings from using retrospective drug utilization review and provider education to effect appropriate prescribing and utilization and, in turn, prevent adverse drug reactions and reduce costs in a targeted beneficiary population.

Program Summary

Patients with a history of drug abuse can be difficult to treat, especially when their diagnoses warrant the use of a controlled substance. The benefits of medication therapy with a drug that has abuse potential must be weighed against the potential for abuse and diversion. In an effort to improve clinical outcomes and reduce drug expenditures as well as related health care costs, Kansas Medical Assistance Programs beneficiaries found to have a history of drug abuse and utilization of a drug with abuse potential were identified, and educational intervention letters were mailed to their prescribers in May 2011. The selected beneficiaries were then evaluated 6 months after the prescriber letters were mailed to determine the impact of the intervention letters.

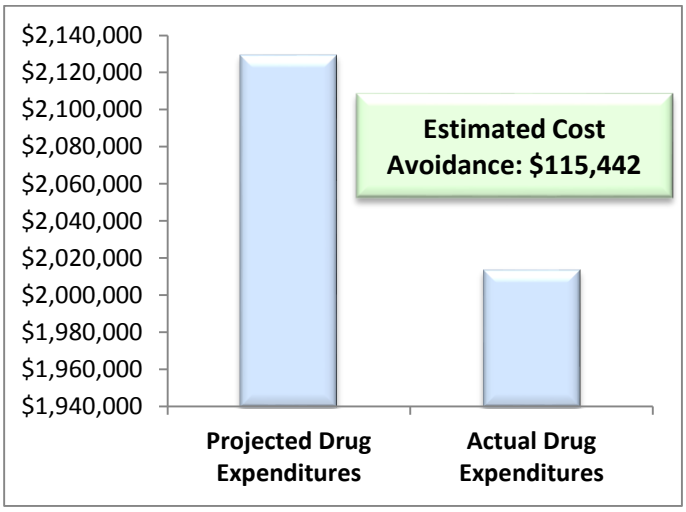
Changes in Criteria Exceptions

At the 6-month evaluation post intervention, appropriate utilization was significantly improved in the target population. Six months after letters were mailed to the prescribers, 482 of the original 688 beneficiaries had at least one claim for any drug and could be evaluated. **Of those remaining 482 beneficiaries, 77.0% of those who were previously using an inappropriate mediation for a patient with a history of drug abuse were no longer found to be using inappropriate medication**. Based on improved utilization, it is clinically probable that serious adverse outcomes were avoided, and overall drug utilization was significantly reduced.

PRE-Intervention	POST-Intervention		
Beneficiaries with Letter Mailed to Prescriber	**Beneficiaries with Any Drug Claim**	**Beneficiaries with Same Criteria Exception**	**% Decrease in Criteria Exceptions**
850	827	289	65.1%

Cost Avoidance for Kansas Medical Assistance Programs

Actual drug expenditures for the post intervention period were compared to projected drug expenditures. For the 6-month post-intervention period, actual drug expenditures for the intervention population were $2,013,982 compared to the projected cost of $2,129,424, **an estimated cost avoidance of $115,442 for the 6 months following the mailing of intervention letters**.



Background

Health Information Designs (HID), in coordination with HP Enterprise Services (HPES), currently performs retrospective drug utilization review (RetroDUR) for Kansas Medical Assistance Programs' fee-for-service population. The total number of unique beneficiaries enrolled in the traditional Medicaid fee-for-service population in State Fiscal Year (SFY) 2011 (July 1, 2010 – June 30, 2011) was 292,522, with an average of 158,846 beneficiaries per month. Prescription claims for approximately 51,000 beneficiaries were processed each month in SFY 2011.

Treating patients with a history of drug abuse with controlled substances is a challenge for providers. When controlled substances are warranted, the benefit of treating a patient with a drug with abuse potential must be weighed against the risk for abuse and diversion.

These patients require close monitoring for signs of drug abuse. According to the Kansas Boards of Healing Arts, Nursing and Pharmacy, when treating patients determined to be at a high risk for medication abuse or to have a history of substance abuse, the provider should consider using a written agreement with patients that outlines patient responsibilities including: submitting to urine drug screens, limiting of prescription refills, requesting and receiving prescriptions from only one health care provider, using only one pharmacy for filling prescriptions and reasons for therapy discontinuation[1].

Beneficiary Identification and Prescriber Intervention

In an effort to promote appropriate prescribing and utilization of medications, HID identified beneficiaries with a history of drug abuse taking drugs with abuse potential and mailed educational letters to their prescribers. When more than one prescriber was attributed to pertinent claims on a patient profile, letters were mailed to all relevant prescribers. Informing prescribers of a patients' complete drug and diagnosis history, including medications prescribed by other providers, may reduce duplicate prescribing of medications and reduce the potential for abuse or diversion of medications.

While the intervention letter itself only addressed utilization of drugs with abuse potential in patients with a history of drug abuse, HID included a patient profile with up to two additional alert messages regarding drug therapy issues and a 6-month history of drug claims and diagnoses along with the letter. Prescribers had the opportunity to review the entire beneficiary drug and diagnoses history, including medications prescribed by other providers, and make changes to therapies based upon this information. For this reason, whenever intervention letters are sent to prescribers, the impact on total drug utilization should be measured. Therefore, total drug utilization in the targeted population was evaluated for 6 months before and after intervention letters were mailed to determine any change in drug cost.

[1] *Joint Policy Statement of the Boards of Healing Arts, Nursing and Pharmacy on the Use of Controlled Substances for the Treatment of Pain.* Kansas State Board of Healing Arts. Accessed March 22, 2012 at www.ksbha.org/misc/jointpainmgmt.html

Analysis Methodology

Each month HID evaluates Kansas Medical Assistance Programs pharmacy claims data against thousands of proprietary criteria. The criteria are developed and maintained by HID clinical pharmacists who review package insert updates as well as medical literature to develop the criteria.

Criteria Evaluated

The following criteria were reviewed for the intervention letters mailed in March 2011.

Drug-Disease Precaution:

- The patient has hypertension and is receiving an antipsychotic that has a moderate- to high-risk for cardio-metabolic disorders. Patients with major mental illness (e.g., schizophrenia and bipolar disorder) have increased risks of morbidity and mortality, due primarily to cardiovascular disease. If possible, consider an antipsychotic agent that has a more favorable cardio- metabolic adverse effect profile. All patients prescribed an antipsychotic agent should receive baseline screening for personal and family history of obesity, diabetes, dyslipidemia, hypertension, and cardiovascular disease. The therapeutic benefits achieved with moderate- to high-risk antipsychotics may be offset by the reduction in life-expectancy related to drug induced cardio- metabolic disease.
- The patient has ischemic vascular disease and is receiving an antipsychotic that has a moderate- to high-risk for cardio-metabolic disorders. Patients with major mental illness (e.g., schizophrenia and bipolar disorder) have increased of mortality and morbidity, due primarily to cardiovascular disease. If possible, consider an alternative antipsychotic that has a more favorable cardio-metabolic adverse effect profile. All patients prescribed an antipsychotic agent should receive baseline screening for personal and family history of obesity, diabetes, dyslipidemia, hypertension and cardiovascular disease. The therapeutic benefits achieved with moderate- and high-risk antipsychotics may be offset by the reduction in life-expectancy related to drug induced cardio-metabolic disease.
- The patient has hyperlipidemia and is receiving an antipsychotic that has a moderate- to high-risk of cardio-metabolic disorders. Patients with major mental illness (e.g. schizophrenia and bipolar disorder) have increased risks of morbidity and mortality, due primarily to cardiovascular disease. If possible, consider an alternative antipsychotic that has a more favorable cardio-metabolic adverse effect profile. All patients prescribed an antipsychotic agent should receive baseline screening for personal and family history of obesity, diabetes, dyslipidemia, hypertension, and cardiovascular disease. The therapeutic benefits achieved with moderate- to high-risk antipsychotics may be offset by the reduction in life-expectancy related to drug induced cardio-metabolic disease.
- The patient has diabetes and is receiving an antipsychotic that has a moderate- to high-risk for cardio-metabolic disorders. Patients with major mental illness (e.g., schizophrenia and bipolar disorder) have increased risks of morbidity and mortality, due primarily to cardiovascular disease. If possible, consider an antipsychotic agent that has a more favorable cardio-metabolic adverse effect profile. All patients prescribed an antipsychotic agent should receive baseline screening for personal and family history of obesity, diabetes, dyslipidemia, hypertension, and cardiovascular disease. The therapeutic benefits achieved with moderate- to high-risk antipsychotics may be offset by the reduction in life-expectancy related to drug induced cardio-metabolic disease.

- The patient is obese and is receiving an antipsychotic that has a moderate- to high-risk for cardio-metabolic disorders. Patients with major mental illness (e.g., schizophrenia and bipolar disorder) have increased risks of morbidity and mortality, due primarily to cardiovascular disease. If possible, consider an antipsychotic agent that has a more favorable cardio-metabolic adverse effect profile. All patients prescribed an antipsychotic agent should receive baseline screening for personal and family history of obesity, diabetes, dyslipidemia, hypertension, and cardiovascular disease. The therapeutic benefits achieved with moderate- to high-risk antipsychotics may be offset by the reduction in life-expectancy related to drug induced cardio-metabolic disease.

Beneficiary Selection

A total of 1,609 beneficiaries met the criteria for inappropriate use of drugs with abuse potential in patients with a history of drug abuse. The drug history profile for each beneficiary was reviewed by a clinical pharmacist to determine if the beneficiary should be selected for intervention.

After beneficiaries were selected for intervention, educational intervention letters—along with a complete drug and diagnosis history profile listing all pharmacy and available diagnosis claims data for the past 6 months—were mailed to the appropriate prescribers. (Prior to mailing, generated letters undergo a quality assurance (QA) process. Some letters are not mailed due to various reasons, including missing or invalid prescriber addresses.)

Beneficiaries Reviewed	Beneficiaries Selected for Intervention	Beneficiaries Actually Intervened	Letters Generated	Letters Deleted in QA process	Letters Mailed
1,609	854	850	895	6	889

Once a beneficiary was selected for intervention, the criteria were suppressed by the DUR system for that beneficiary for 6 months.

Prescriber Response Tabulation

The intervention letter and drug history profile included a response form, which allowed the prescriber to provide feedback and enabled HID to determine whether any action would be taken in response to the letter. The response form includes standard responses printed on the form that allow the prescriber to check a box for the response that best fits their intended action as well as space for written in comments from the prescriber.

The prescribers were encouraged to return the response forms using the self-addressed stamped envelope included with the intervention letter or via fax. HID tracked all response forms returned as well as all written-in comments from prescribers for evaluation. See the Results section for these numbers.

Evaluation of Changes in Criteria Exceptions

In an effort to determine the impact of the intervention letters independent of prescriber responses, beneficiary claims were evaluated 6 months after letters were mailed. Since the letters were mailed in May 2011, the 6-month follow up was performed in November 2011. HID first determined how many of the initially-selected beneficiaries continued to have Medicaid benefits and still had active eligibility by determining how many had any claim for any drug in November 2011. Following that, HID determined who still met the same criteria for inappropriate utilization of drugs with abuse potential in November 2011. See the Results section for these numbers.

Estimated Cost Avoidance and Changes in Drug Utilization

To determine the impact of the intervention letters on overall drug expenditures, total drug utilization (claims for all drugs) in the targeted population was evaluated 6 months before and 6 months after intervention letters were mailed. For those beneficiaries selected for intervention in May 2011, HID determined the total drug expenditures for December 2010 – May 2011 (pre-intervention period) and June 2011 – November 2011 (post-intervention period). HID then compared drug expenditures and utilization in the targeted population for the pre- and post-intervention time frames with a comparison group to determine the estimated impact of the intervention letters.

The comparison group consisted of fee-for-service beneficiaries who were identified using the same criteria, but whose prescribers did not receive an intervention letter because they did not hit the intervention criteria in the same month that intervention letters were mailed.

For a beneficiary to be included in the analysis for either the intervention or comparison groups, he or she had to have at least one claim for any drug in the month at the beginning of the pre-intervention period (December 2010) and the month at the end of the post-intervention period (November 2011).

Estimated cost avoidance and projected drug expenditures were determined for the intervention group by using the percent change from pre-to post-intervention in both groups, using the following equations:

Estimated Cost Avoidance = Intervention Group Pre-Intervention Cost X ((% Change Comparison Group - % Change Intervention Group)/100)

Projected Drug Expenditures = Estimated Cost Avoidance + Post-Intervention Drug Expenditures

The same equations were used to determine the estimated claims avoided. See the Results section for changes in drug utilization and expenditures.

Limitations

One limitation resulted from the fact that no eligibility data was available to determine whether beneficiaries continued to be eligible for Medicaid for the full 6 months before and after intervention letters were mailed. Therefore, as a means to test for Medicaid eligibility when calculating cost avoidance, HID determined how many beneficiaries had any claim for any drug during the first month of the pre-intervention period and the last month of the post-intervention period. Those beneficiaries who did not have claims in both months were not included in the follow up analysis. It is possible that some patients may have been excluded from the follow up analysis that continued to have Medicaid eligibility but had no recent pharmacy claims.

A similar eligibility process was applied to the changes in criteria exceptions. Since the change in criteria exceptions only dealt with the month the letter was mailed and 6 months after the letter was mailed, drug claims during the month of the 6-month follow up were examined to determine eligibility.

The reduction in drug utilization and expenditures could be effected by multiple factors; it would be impossible to attribute the changes in utilization and expenditures to one thing—including the intervention letters. The comparison group is used to evaluate these factors, as many of them affect the entire Medicaid fee-for-service population. One factor that could possibly have changed the prescribing and utilization trends of controlled substances was the implementation of the Kansas Prescription Drug Monitoring Program, K-TRACS, in April 2011.

Results

Prescriber Responses to Intervention Letters

A total of 217 coded responses were received from prescribers who were sent an intervention letter, for a response rate of 24.4%. Out of the 217 coded responses, there were 38 response forms that had additional written comments. Coded responses are in the table below, followed by examples of written comments.

Response	Number
Benefits of the drug outweigh the risk	17
Beneficiary no longer under this prescribers care	14
Reviewed information and continuing therapy without change	95
Prescriber will reassess and modify drug therapy	8
Tried to modify drug therapy, beneficiary is non-cooperative	7
Beneficiary has not been seen recently	7
Beneficiary was never under prescribers care	10
Has appointment to discuss therapy	17
Prescriber did not write prescription attributed to them	10
Tried to modify therapy, symptoms reoccurred	4
Prescribed medication while covering for other MD or in the ER	2
Response form returned blank	26
Total Responses	***217***

Prescriber Comments

The following statements are samples of comments received from providers via the response forms:

"Very difficult patient to treat"

"Patient does not have diabetes. On metformin for metabolic syndrome"

"I have reviewed and believe this medication to be safe for this patient"

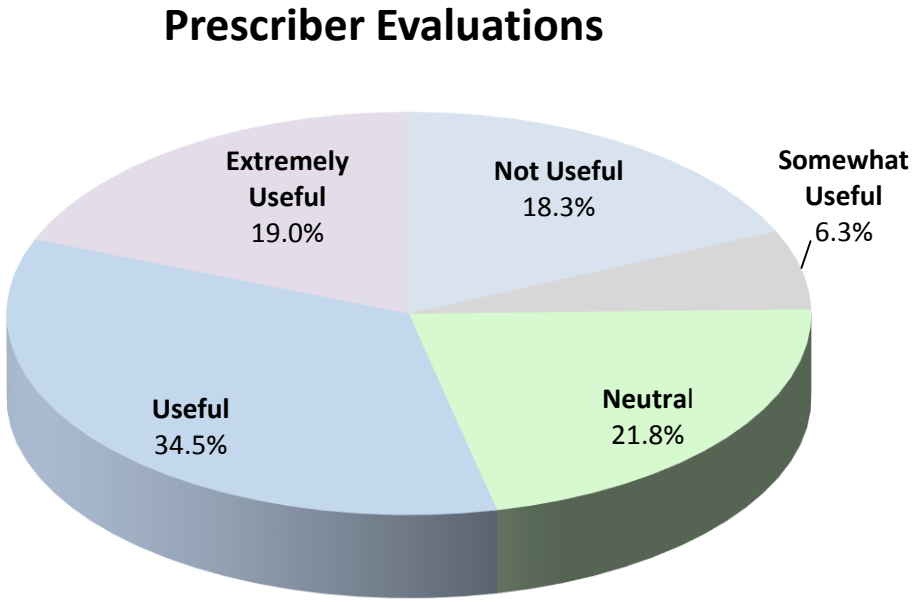
"I have discussed this with the patient, they are reluctant to change. Patient is very stable"

"Patient has done well on this medication and doesn't want to change"

"Patient is not a candidate to reduce medication. Returns to behaviors"

Prescriber Feedback on Intervention Letters

In addition to being able to provide information about their course of action following receipt of the intervention letter, prescribers are also able to provide additional feedback on intervention letters. Out of the 217 coded responses received, 142 provided additional feedback. A total of 53.5% of feedback responses ranked the letters as 'Useful' or 'Extremely useful'. A chart showing the percentage of responses in each evaluation category is shown below:



Changes in Criteria Exceptions

A total of 850 beneficiaries were selected for intervention based on the criteria for adverse cardiometabolic effects of antipsychotic agents. Six months after letters were mailed to the prescriber, 827 of the original 850 beneficiaries had at least one (1) claim for any drug and could be evaluated. Of those 827 beneficiaries, 289 (34.9%) were found to hit the same criteria in the follow up period, meaning they had the same therapy problem post-intervention that their prescriber received a letter regarding. ***The remaining 538 beneficiaries (65.1%) were found to no longer have the same therapy problem that their prescriber received a letter regarding.***

Criteria	PRE-Intervention	POST-Intervention		
	Beneficiaries with Letter Mailed	Beneficiaries with Any Drug Claim	Beneficiaries with Same Criteria Exception	% Decrease in Criteria Exceptions
Drug-Disease Precaution	850	827	289	65.1%
Totals	***850***	***827***	***289***	**65.1%**

Total Drug Utilization and Estimated Cost Avoidance in Targeted Population

For the intervention and comparison group beneficiaries who had claims for any drug during the beginning of the pre-intervention and end of the post-intervention periods, HID evaluated total drug expenditures and claims for the 6 months prior to, and 6 months after, letters were mailed [2].

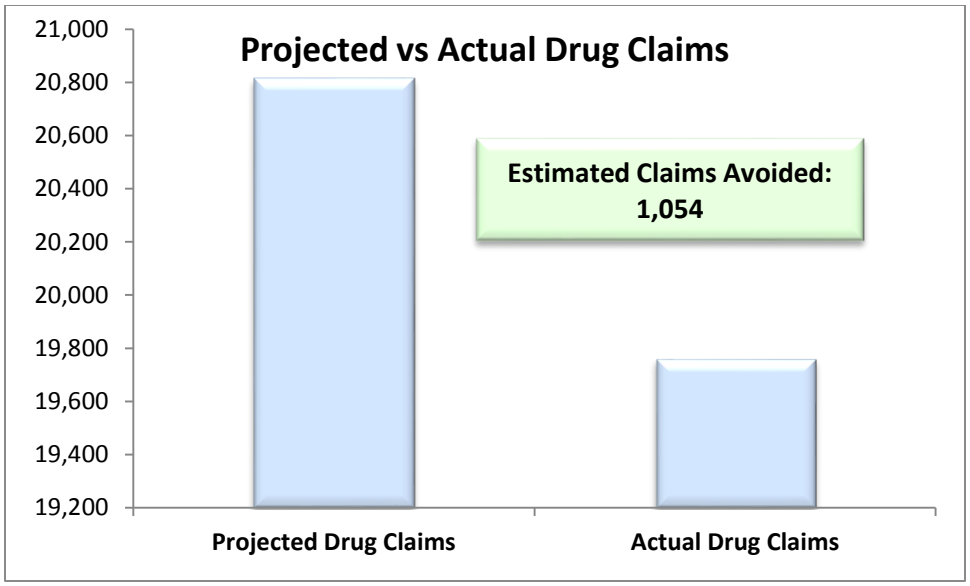
		Drug Expenditures	Drug Claims
Intervention Group	**Pre-Intervention**	$2,005,952	20,445
	Post-Intervention	$2,013,982	19,71
	Difference	$8,030	-684
	% Change	0.399%	-3.461%
Comparison Group	**Pre-Intervention**	$905,608	13,525
	Post-Intervention	$964,990	13,783
	Difference	$59,383	285
	% Change	6.154%	1.872%

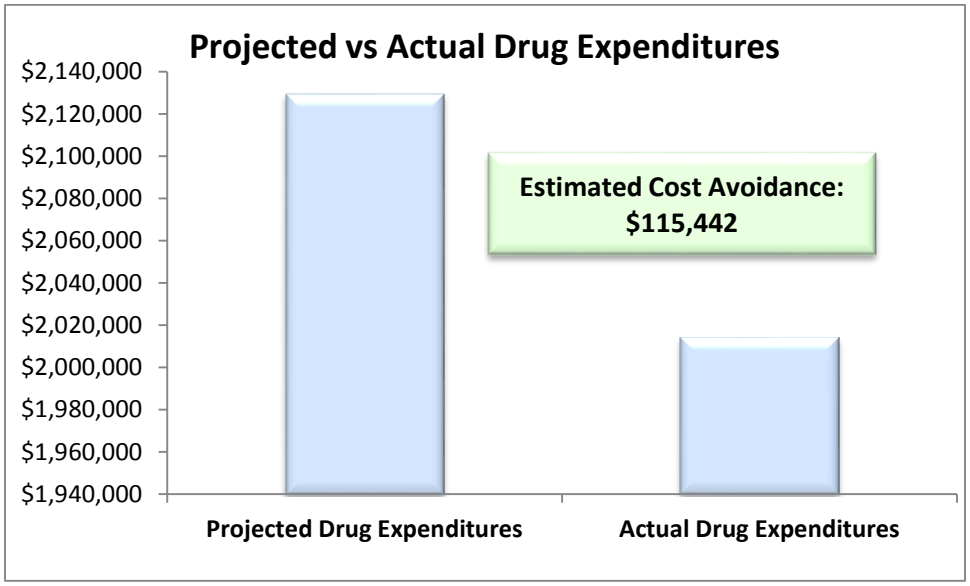
Intervention Group: *453 beneficiaries*

Comparison Group: *416 beneficiaries*

Projected Intervention Group Post-Intervention Cost:	**$2,129,424**
Estimated Cost Avoidance:	**$115,442**
Projected Intervention Group Post-Intervention Claims:	**20,815**
Estimated Claims Avoided:	**1,054**

[2] Calculation amounts may vary slightly due to rounding





Results Discussion

Within the targeted beneficiary population, improvements in utilization of drugs with abuse potential were noted. Six months after intervention letters were mailed, a population of 482 patients had enough data available to evaluate. Of these patients, all of whom met criteria for inappropriate utilization of drugs with abuse potential prior to the mailing of prescriber letters, 77.0% no longer met the same criteria 6 months after the letters were mailed.

All drug claims data and some diagnosis data is available for analysis. Any diagnosis data available is processed along with the pharmacy claims data to provide as complete a drug and diagnosis history as possible for each beneficiary. Medical data that includes the cost associated with hospitalization, doctor visits, and emergency room visits is not analyzed as part of the RetroDUR program. However, it is suspected by reducing inappropriate utilization of drugs with abuse potential, other medical associated costs due to adverse drug reactions, drug abuse and diversion would be reduced in addition to the reduction in drug expenditures.

Conclusion

The prescribing and utilization of drugs with abuse potential improved after intervention letters were mailed to prescribers for targeted beneficiaries. For beneficiaries with data available for follow up 6 months after letters were mailed, 77.0% of them no longer met the same criteria. Claims data for 6 months before and after intervention letters were mailed was evaluated and compared, showing a cost avoidance of drug expenditures of over $115,000 in the 6-month time period following the mailing of the intervention letters.

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Prescribers were encouraged to return response forms to indicate their intended action following the receipt of the intervention letter and patient profile. The response rate was 25.4%, 177 response forms were returned indicating the prescribers intended action and 134 feedback forms were returned. Prescriber feedback showed 45.6% of the feedback responses ranked the intervention letters as ‘Extremely Useful’ or ‘Useful’.

